

NEW FLOWERING PLANTS FROM SOUTHERN NEW IRELAND, PAPUA NEW GUINEA

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ABSTRACT

Botanical exploration of the Hans Meyer Range in southern New Ireland revealed the existence of two previously unknown taxa in the families Rubiaceae and Corsiaceae. The novelties, *Psychotria osiana* Takeuchi & Pipoly, (Rubiaceae) and *Corsia purpurata* var. *wiakabui* Takeuchi & Pipoly (Corsiaceae) are described and illustrated. Taxonomic and ecological notes are also provided for the new taxa.

ABSTRACT (MELANESIAN TOK PISIN)

Wanpela wok bus long sait bilong botani ibin kamap long ol lain maunten bilong Hans Meyer, Niu Iland Province, long yia 1994. Dispela wokbus o stadi ibin kamapim tupela niupela samting. Wanpela em sotpela diwai bilong famili Rubiaisi. Namba tu em wanpela liklik gras nating bilong famili Korsiasi. Tupela igat nem olsem: *Psychotria osiana* na *Corsia purpurata* var. *wiakabui*. Dispela stori i tok klia na soim tu sampela piksa bilong tupela.

INTRODUCTION

Papua New Guinea (PNG) is one of only four countries on earth projected as retaining most of its original forest cover by the end of this century (Suzuki 1993). Unfortunately, it is also among the least known floristic areas within the Malesian region (Conn 1994; Johns 1995). In the recent multiagency Conservation Needs Assessment (CNA), 17 localities of primary conservation significance were identified for Papuan forest environments (Beehler 1993). Southern New Ireland was one of the enumerated sites considered vital to biodiversity preservation and in critical need of current information. As a direct consequence of the CNA evaluation, a biological assessment expedition was organized by Conservation International and the Papua New Guinea Department of Environment and Conservation (DEC) in January–February 1994. A multidisciplinary compilation of results from that survey has been prepared as a Rapid Assessment Protocol (RAP) Working Paper

by Conservation International (Beehler, in press). Orchid specimens from the Hans Meyer trip were previously reviewed in a separate specialist account (Howcroft 1994). Two new taxa discerned during general examination of the expedition's botanical gatherings are described here.

RUBIACEAE

Psychotria osiana Takeuchi & Pipoly, sp. nov. (Fig. 1). TYPE: PAPUA NEW GUINEA. NEW IRELAND: Hans Meyer Range, pond next to 'Lake Camp,' 04° 27.205' S, 152° 56.489' E, 1,175 m, 29 Jan 1994 (fl, fr), W. Takeuchi & J. Wiakabu 9650 (HOLOTYPE: LAE; ISOTYPES: A, BRIT, K, L).

Quoad stipula elongata calyptrataque, stipula ab laminis juvenibus rumpentes, *P. lelanoides* valde arce affinis, sed ab ea inflorescentiis trichotomiis reducisque (non monotomiis elongatisque), floribus verticellatis (non alternatis) praeditis, laminis secus costis furfuraceo-lepidotis (non glabris) denique petalis desuper papillois (non glabris) statim cognoscitur.

Shrub or small tree to 7 m height, 8 cm dbh. *Stem* straight, isodiametric, basal swell absent; outer bark brown, smooth, slash and sapwood stramineous to pale yellow. *Branchlets* terete, 2–3 mm diam., pale brown, slightly compressed at the summit, laxly pilose at apical nodes otherwise glabrescent. *Stipules* sheathing, calyptrate, caducous, translucent whitish-green, glabrous, to 5.5 cm long and 6 mm wide. *Leaves* opposite, usually conferted; blades coriaceous, elliptic, 10–13 cm long, 3–4 cm wide, apically acuminate, basally attenuate, the margin entire, adaxially nitid and glabrous, abaxially light green and furfuraceous-tomentose along the midrib, the midrib prominulous on both sides, more elevated beneath; the secondary veins 10–13 oblique lateral pairs, excurrently arcuate and usually closing submarginally, the tertiary reticulum lax, irregular, bifacially raised; petioles adaxially plane, 10–20 mm long, glabrous. *Inflorescence* a sessile, terminal, pinnate panicle, rupturing through the stipule, trichotomous (with three principal branches at base), the branches with flowers racemose, the primary rachis to 2 cm long, greenish, somewhat angulate, laxly pilose at nodes, internodes subglabrous or puberulent; floral bracts inconspicuous, not persisting; pedicels 1–3 mm long. *Flowers* opposed or in verticels, 5-merous, entirely glabrous, apparently isomorphic; calyx broadly cupuliform, .5 mm long, 1–2 mm wide, limb denticulate; corolla tubular, 3 mm long and obtusely cylindrical in bud, the lobes chartaceous, corniculate, elliptic to ovate, 1.5 mm long, 1 mm wide, spreading or reflexing at anthesis, adaxially papillose; stamens erect, epipetalous; filaments 1.5 mm long, adnate to the corolline sinuses or slightly below. the anthers basifixed, oblongoid, 0.7 mm long, 0.2 mm wide, apically and basally emarginate; ovary umbonate, channelled, bilocular, the style bifid, slightly exerted, the stigmatic lobes spreading and tuberculate. *Drupelet* subglobose, 5–8 mm diam., epicarp glabrous; pyrenes 2, not dorsally ridged, approximately planoconvex, flat on the commissural face, often with one pyrene aborted or reduced; endosperm ruminant.

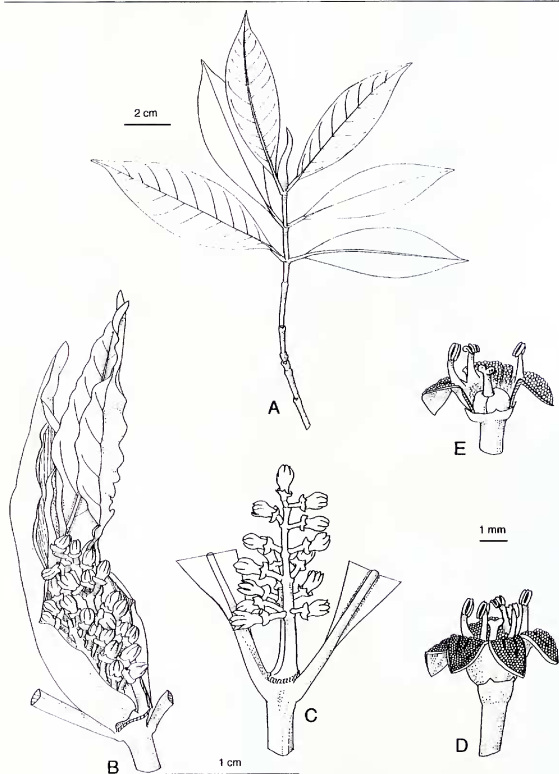


FIG. 1. *Psychotria osiana* Takeuchi & Pipoly. A. Branchlet. B. Developing inflorescence emerging through stipule. C. Inflorescence; showing main rachis and part of the second rachis in back. Third axis deleted for clarity. D. Flower at anthesis; petals reflexing. E. Partially dissected flower. A–D drawn from holotype.

Distribution and ecology.—Known only from mossy montane forest in the Hans Meyer Range of southern New Ireland. Occurring as a seral element in gap phase regeneration among mature growth premontane forest stands, and along forest margins.

Etymology.—It is a great pleasure to dedicate this species to Dr. Osia Gideon, Deputy Director of the Papua New Guinea Forest Research Institute and a specialist in Papuanian Rubiaceae and Zingiberaceae, for his relentless efforts to document the rich, largely autochthonous, flora of New Guinea.

PARATYPE: PAPUA NEW GUINEA. NEW IRELAND: Hans Meyer Range, pond next to 'Lake Camp,' 04° 27.205' S, 152° 56.489' E, 1,175 m, 27 Jan 1994 (fl, fr), *W. Takeuchi & J. Wiakabu 9560* (A, BRIT, K, L, LAE).

Papuanian *Psychotria* were first revised by Valetton (1927) and the nonclimbing representatives more recently treated by Sohmer (1988). Infrageneric relationships are still poorly understood due to the taxonomic difficulty of the genus and the absence of regionally-based studies. However a number of informal species groups have been recognized by Sohmer from macroscopic features such as stipule form and inflorescence structure.

Psychotria osiana is characterized by a contracted trichotomous inflorescence (i.e., with 3 rachises branched at the base), flowers opposed or verticelled along the main axes, leaf blades with abaxially furfuraceous-tomentose midribs, completely glabrous flowers, and petals adaxially papillose. The corolline papillae are apparent in fresh or rehydrated material, but less so *in sicco*.

A total of 17 species of Papuanian *Psychotria* have sheathing stipules of the sort present in *Psychotria osiana*. Developing inflorescences and young leaves emerge by rupturing through the stipule, which subsequently disintegrates or falls away intact. The combination of calyprate (sheathing) stipules and a trichotomous inflorescence occurs in only two species: *P. leleanoides* Sohmer and *P. lorentzii* Valetton. *Psychotria osiana* is clearly related to *P. leleanoides*, (a species from New Britain and the Solomon Islands), but is distinguishable from it by the leaf indumentum and the entirely glabrous flowers with papillate corolla. Judging from elevational distributions, *Psychotria osiana* is the montane sister species to *P. leleanoides*, the latter being primarily a lowland taxon from elevations below 200 m (Sohmer 1988).

CORSIACEAE

Corsia purpurata L.O. Williams var. *wiakabui*, Takeuchi & Pipoly, var. nov. (Fig. 2). TYPE: PAPUA NEW GUINEA. NEW IRELAND: Hans Meyer Range, pond next to 'Lake Camp,' 04° 27.205' S, 152° 56.489' E, 1,175 m, 28 Jan 1994 (fl, fr), *W. Takeuchi & J. Wiakabu 9611* (HOLOTYPE: LAE, in spirit).

Ad *Corsia purpuratam* var. *purpuratam* accedens sed ab ea labello acuminato nec ad basem extendens praeclare distat.

Terrestrial herb to 13 cm height, sciophytic, erect, all parts glabrous and

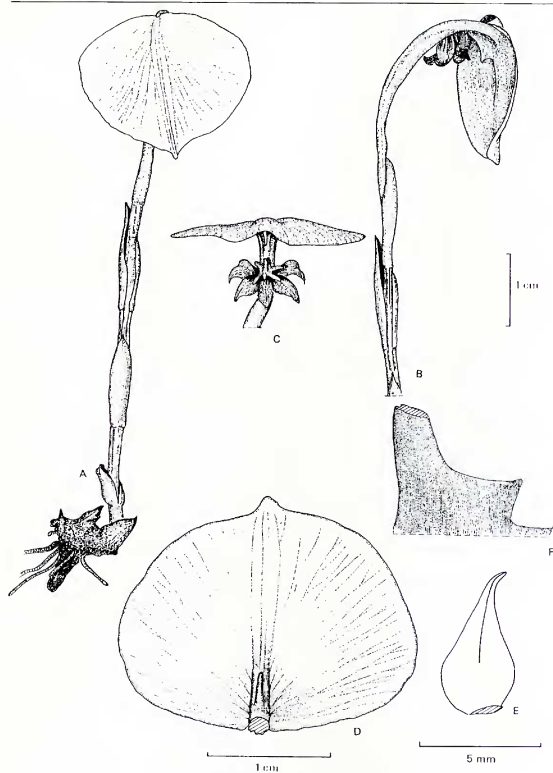


Fig. 2. *Corsia purpurata* L.O. Williams var. *wiakabui* Takeuchi & Pipoly var. nov. A. Habit, dorsal view. B. Habit, lateral view. C. Frontal aspect, petals and lateral sepals. D. Median sepal. E. Petal. F. Basal callosity, from side. A-F drawn from holotype.

dull reddish-brown. *Stems* terete, weakly sulcate, the nodes distant. *Leaves* 4–5, spirally arranged, acroscopic, base sheathing; lamina linear-acuminate, conduplicate or with margins broadly revolute, chartaceous, 9–17 mm long, 4–6 mm wide, to 6-nerval, sometimes apiculate; venation visible as dark lines, not raised on either side. *Flowers* solitary, terminal on the unbranched stem, bisexual; median sepal flabellate, symmetrical, 16–19 mm long, 20–23 mm wide, nodding at anthesis, unguiculate, bluntly acuminate at the apex; the basal callosity linear, narrowly raised by 4 mm above the plane of the 'labellum,' summit corniculate, base abruptly truncate at the claw; median sepal 12-veined, the veins parallelodromous, diverging mainly from the proximal half of the sepal, once or several times furcate before the margin; petals and lateral sepals isomorphic, basiscopic and incurved, costate, lanceolate, 4 mm long, 3 mm wide, acumen 1.5 mm long; stamens 6, in 2 whorls opposite the perianth segments; filaments resembling the style, 0.6–0.7 mm long; the anther cells 2, oblongoid, 1.2 mm long; style simple, cylindrical, ca. 1 mm long. *Fruit* not seen.

Distribution and ecology.—Known only from the type locality in the Hans Meyer Range on New Ireland. *Corsia purpurata* var. *wiakabui* occurs infrequently in mature-growth, primary premontane forest, on its floor, covered by leaf duff. This new variety was encountered as a population flushing after recent rains and thereafter evanescent; all individuals were seen in comparable maturational states.

Etymology.—The new variety is dedicated to Joseph Wiakabu; botanist, explorer-collector, and colleague from the Papua New Guinea National Herbarium.

PARATYPE: PAPUA NEW GUINEA. NEW IRELAND: Hans Meyer Range, slopes above river valley on the ascent from Mandih lake, 04° 26' S, 152° 59' E, 750 m, 10 Aug 1975, M.J.S. Sands et al. 2091 (K, LAE).

Corsia was revised by van Royen (1972) in a monograph based on 45 exsiccatae numbers, an average of less than 2 collections per species. The limited number of specimens available for study is due to population rarity, the inconspicuous habit of the plants, an ephemeral phenology, and the preference for sheltered microsites in forest where ambient light conditions favor concealment. Van Royen (ibid.) commented that encounters with *Corsia* are often of a fortuitous nature; occasioned by understory sun flecks falling on the plants in a certain way by chance. There is no doubt that the genus is rarely found by collectors. The intervening years since the initial revision has seen little increase in availability of specimens, nor is the situation likely to improve dramatically in the future. The difficulty of botanizing purposefully for *Corsia* discourages the sort of field-based studies necessary for understanding the morphological variation between populations.

According to van Royen's (1972) conspectus, *Corsia* is a saprophytic genus with 25 species distributed through New Guinea, the Bismarck Archipelago, the Solomon Islands, and Australia. Most of the species are narrowly defined endemics of montane forest habitats, and appear to be restricted to specific mountains. On the basis of the venation and basal callosity of the median sepal, the new taxon is related to *C. purpurata* var. *purpurata*, but is distinguishable by the flabellate 'labellum' with acuminate apex and the base truncate rather than extended.

The type locality for var. *waikabui* is floristically depauperate in comparison to similar habitats from mainland New Guinea, and is disproportionately composed of epiphytic or nonendemic species (Takeuchi and Wiakabu, in press). Depauperate levels of biological diversity in this montane environment was also reported by zoological specialists participating in the New Ireland survey (Beehler in press, passim). The expedition's collective findings are consistent with a supposition that the cloudy uplands of southern New Ireland are of geologically recent origin. In view of the multidisciplinary results from the recent survey, it is unlikely that future exploration of the Hans Meyer Range will yield significant numbers of additional novelties.

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